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STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development

Standard Energy Code Proposal Form

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # **C403.10.3.1**

Brief Description Protection of piping insulation.:

Protection of piping insulation.

Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture,

~~equipment maintenance~~ physical damage and wind and shall provide shielding from solar radiation that can cause degradation of the material. Protection shall be removable for no less than ~~the first~~ 6 feet from ~~HVACR~~ the equipment for maintenance. Adhesive tape shall be prohibited.

Purpose of code change:

The intent of these sections is not only protection of pipe insulation from weather but to insure the

insulations thermal conductivity energy savings integrity lasts the life of the mechanical system as

per the intent of the code. To remove the opportunity for misunderstanding so that the code has will have its intended

result, the term “equipment maintenance” must be clarified that it is for physical damage.

The 2012,2015, & 2018 IECC Code and Commentary both state that Equipment maintenance is to protect from physical.

damage to the pipe insulation. “The piping insulation should be protected from sunlight, moisture, wind and solar radiation but also from personal who may step on it, run in to it with equipment, etc. and cause it to be damaged. “

Protective covering must also protect from physical damage so if the protection covering does get damaged from stepping on it, dropping tools on it, birds, lawn trimmers etc.it can be repaired or replaced. Keeping the insulations thermal conductivity integrity and insuring the insulation system last the life of the mechanical system and avoiding the costly replacement of the insulation. Repairing pipe insulation is done with adhesives and then adhesive seams are left to weather exposure leading to degradation. The seams open sun and moisture damage the insulation system. Removable protection is vital to ensure insulation can retard heat and condensation to provide energy savings and safety.

The intent is in the original 2012 IECC code proposal, the proponent’s reason statement of this requirement EC207-09/10 stated this was to Harmonize the IECC with ASHRAE 90.1 the 2012 code the reason statement also stated -“All AC units require periodic maintenance. The frequency varies with how hard the unit operates, exterior temperature, preventive maintenance program, and many others. On every occasion, every maintenance provides an excuse for the

Freon line insulation to be touched and removed." The intent is clear that the protection be removable and independent of the pipe insulation for maintenance without damaging the pipe insulation.

Removing protection without damaging the insulation is stated in EC207-09/10 "Adhesives Tape is not permitted as it will limit maintenance and damage insulations permeability characteristics. Removal of tape damages the integrity of the original insulation into pieces, specially, if the insulation has reached thermo set state.

The main reason for pitting and corrosion of the piping in refrigerant lines is moisture intrusion into the pipe insulation from the termination point that are not protected. The gap between the piping and insulation creates a pathway for moisture to run the length and damage the system. It only takes a 1% moisture gain to equal to a 7.5 % loss in thermal efficiency.

"The most likely area of intrusion is at the insulation system penetration Points, gauges, attachments etc. If the integrity or exterior of the insulation system is not installed correctly and moisture sources are present, moisture will more than likely penetrate the insulation system. Moisture intrusion can negatively affect all aspects of the insulation system such as thermal values, which can have a direct impact on process control, energy cost, condensation, control, safety, the potential of mold development etc. Not to mention the potential of corrosion under the insulation (CUI)." Insulation, the Forgotten Technology for Energy Conservation 2007 ACEEE

Your amendment must meet one of the following criteria. Select at least one:

- ☐ Addresses a critical life/safety need.
- ☒ The amendment clarifies the intent or application of the code.
- ☐ Addresses a specific state policy or statute. (Note that energy conservation is a state policy)
- ☐ Consistency with state or federal regulations.
- ☐ Addresses a unique character of the state.
- ☐ Corrects errors and omissions.

Check the building types that would be impacted by your code change:

- ☐ Single family/duplex/townhome
- ☐ Multi-family 1 – 3 stories
- ☒ Multi-family 4 + stories
- ☒ Commercial / Retail
- ☒ Institutional
- ☒ Industrial

Other contact name Click here to enter text.

Email address howard.ahern@airexmfg.com

Your name Howard Ahern

Phone number 760-250-1625

Your organization Airex MFG.

Instructions: Send this form as an email attachment, along with any other documentation available, to: sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9278.

Economic Impact Data Sheet

This code change does not increase the cost of construction as it been it has been a code requirement since July 2013 form the 2012 IECC. Removable has been in use from 2013 by use of piping, covers, jackets, bent metal, channel & gutter systems, cladding, pipe , etc.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost **Analysis tool** and **Instructions;** use these **Inputs**. **Webinars on the tool can be found Here and Here**)

$Click here to enter text./square foot (For residential projects, also provide $Click here to enter text./ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

Click here to enter text.KWH/ square foot (or) Click here to enter text.KBTU/ square foot

(For residential projects, also provide Click here to enter text.KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application: There should be no additional enforcement time as protection of pipe insulation has been required in Washington since July 2013.

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.